

WHAQ (Washington High Academic Questionfest) II: Miami Connection

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Written by current and former members of the teams at Washington and Miami Valley

Packet 10

Tossups

1. **One character in this novel repeatedly says “I’m cold” before dying, and the protagonist appears in a tree at that man’s funeral. Another character flees to Sweden at the end of this novel, in which M&M Enterprises buys the entire world’s supply of Egyptian cotton. An** (*) IBM machine in this novel promotes Major Major Major to Major, and Colonel Cathcart continues to raise the number of missions the 256th Air Force Squadron must fly. For 10 points, name this novel about Yossarian, who is caught in a paradoxical situation, written by Joseph Heller.

ANSWER: Catch-22 <Carrie Derner>/<ed. ME>

2. **This man came out of retirement to design a museum, which was influenced by the Ibn Tulun Mosque that sits on a peninsula in Doha, Qatar. One work by this architect used structural expressionism to resemble growing bamboo shoots. Along with the Bank of China Tower, this architect designed the John Hancock Tower, which had problems with** (*) windowpanes falling off. This architect designed Cleveland’s Rock and Roll Hall of Fame. For 10 points, name this designer of the Louvre's glass pyramid, a Chinese-American architect.

ANSWER: I. M. Pei [*“I.M. Pay”*] [or Ieoh Ming Pei] <Cole Phinney>/<ed. DD>

3. **Because the curl of an electrostatic field is zero, these devices must have a fringe field on their edges. A freely-suspended one of these objects was the central item in the Trouton-Noble experiment. A low pass filter is created when one of these devices is placed parallel to a source in series with a resistor, and its cutoff frequency will be** (*) 1 over two pi RC. The simplest type of these devices has a dielectric between its parallel plates, and early examples of them are Leyden Jars. For 10 points, name these devices that store electrical charge, whose namesake quantity is measured in Farads.

ANSWER: Capacitors <David Dennis>/<ed. HB>

4. **This ruler signed a treaty with Tahmasp at Amasya, which established Erzurum as a buffer area in Eastern Anatolia. This ruler’s main architect is buried just outside the “crown on the hill” mosque named after this leader. This ruler was served by the mosque-building architect Sinan. A small army led by Captain Nikola Jurišić managed to hold off this ruler’s army at the Siege of Guns, and he won a battle where Louis II of Hungary died. This** (*) sultan was prevented from invading Europe due to his failure to capture Vienna in 1529. For 10 points, name this son of Selim the Grim, the sultan who ruled at the peak of the Ottoman empire.

ANSWER: Suleiman I [or Suleiman the Magnificent; or Suleiman the Lawgiver; or Kanuni Sultan Suleyman; prompt on Suleiman] <David Dennis>/<ed. JO>

5. A character of this kind was originally shown to be living in a dream of Richie's, but a later edit added a scene of that character erasing minds and moving to Boulder, Colorado for a spin-off. Another character of this kind is constantly referred to by an acronym rather than his given name of Gordon Shumway. A character of this kind was permitted to stay by (*) Stan Smith as a thank-you for saving him from exploding grenades via a laundry chute at Area 51. For 10 points, name these people on *Happy Days*, *ALF*, and *American Dad*, who are extraterrestrials living with a human family.

ANSWER: Aliens living with a family [or Aliens living in a household] <David Dennis>/<ed. SP>/<ed. JO>

6. These molecules are classified via the Chothia and Kabat numbering schemes. Both primary and secondary types of these molecules are used in a Western blot to probe for a protein of interest. In the ChIP procedure, these proteins precipitate DNA-binding proteins to study their effects *in vivo*, a process known as (*) immunoprecipitation. These proteins' two light chains and two heavy chains are connected by disulfide bonds, and in mammals, they are named with "Ig" and a letter. For 10 points, name these Y-shaped proteins that bind to antigens to trigger an immune response.

ANSWER: antibody [or antibodies; or immunoglobulins] <David Dennis>/<ed. AR>

7. In one play by this author, a character uses swimming from Puerto Barrio Mexico to China as a euphemism for suicide and is fought over by Hannah and hotel owner Maxine Faulk. In that play, defrocked priest Reverend Shannon releases the title creature. In another play by this author of *Night of the* (*) *Iguana*, a character claims she has "always depended on the kindness of strangers." Blanche DuBois and Stanley Kowalski are creations of, for 10 points, what author of *A Streetcar Named Desire*?

ANSWER: Tennessee Williams [or Thomas Lanier Williams III] <Joe Stitz>/<ed. ME>

8. A building constructed by this ruler was the subject of a poem by Paul the Silentiary. This leader was described as a demonic figure with a detachable head in Procopius' *Secret History*. A general of this ruler used a disused aqueduct to invade Naples; that general, along with Mundus, was earlier sent by this ruler to put down an uprising that attempted to crown (*) Hypatius. This ruler's wife Theodora convinced him not to flee that uprising, declaring "purple is the noblest shroud." This emperor sent Belisarius to quell the Nika riots. For 10 points, name this Byzantine emperor, who ordered the construction of the Hagia Sophia.

ANSWER: Justinian I [or Justinian the Great] <David Dennis>/<ed. JO>

9. The ending section of this work reuses a Gregorian melody adapted in the earlier *Te decet hymnus* [*"Tay Deck-ett Hymnus"*], and also reuses the fugue from an earlier section for the *Cum Sanctis Tuis*. The composer of this piece interrupted work on it to complete *La Clemenza di Tito*. One orchestration of this work by Robert Levin scraps a two note "Amen," substituting an enormous fugue to end the (*) *Lacrymosa* [*"Lack-ree-moe-sah"*]. Franz von Walsegg was this work's commissioner, unknown to the composer. This work was completed by Franz Sussmayr, as the composer left it unfinished at his death. For 10 points, name this D minor work by Wolfgang Amadeus Mozart, a mass for the dead.

ANSWER: Mozart's Requiem Mass in D minor [or Köchel 626; or Requiem after "Mozart" is read; prompt on Requiem by asking for the composer before "Mozart" is read] <John John Groger>/<ed. DD>

10. One man claiming to succeed this leader declared himself "King of the Kingdom of God," and moved his followers to Beaver Island. This man warned against the use of "strong" and "hot" drinks in the "Word of Wisdom," part of the larger text "Doctrine and Covenants." Photos were released in 2015 of the (*) "seer stones" this man allegedly used to translate golden tablets, written in Reformed Egyptian, that were revealed to him by the angel Moroni. For 10 points, name this founder of the Church of Jesus Christ of Latter-Day Saints.

ANSWER: Joseph Smith, Jr. <Sophia Johnson>/<ed. AR>

11. One character in this novel becomes engaged to Miss Grey for financial security and had scandalously impregnated Eliza Williams. After another character in this novel is disowned by his mother, Lucy Steele leaves him for his brother Robert. One of the protagonists of this novel twists her (*) ankle while running down a hill at Barton Park, and later rejects John Willoughby. Edward Ferrars and Colonel Brandon marry Elinor and Marianne at the end of, for 10 points, what Jane Austen novel about the Dashwood sisters?

ANSWER: Sense and Sensibility <Carrie Derner>/<ed. ME>

12. A large plateau in the north of this country hosts a monastery only accessible by climbing a rope. The remains of medieval castles in this country, built by a ruler of the Solomonic dynasty are found in Gondar. A group of churches in this country sit in 40-foot holes, carved out of the surrounding rock, and includes Bet Giyorgis. One church in this country claims to house the Ark of the Covenant in (*) Axum. The Akobo and Pibor rivers make up part of this country's border with South Sudan, and this country disputes control of the Ogaden region with Somalia. For 10 points, name this nation with capital Addis Ababa.

ANSWER: Ethiopia [or Federal Democratic Republic of Ethiopia; or Itvop'iyā; or YeEtiyop'iyā; or YeEtyop'iyā] <David Dennis>

13. **One form of this process involving hard water and EBT ends with the solution turning steel blue. In that "complexometric" form of this process, magnesium and calcium ions are chelated by EDTA. Performing this process on a weak polyprotic acid yields multiple (*) equivalence points which can be approximated using methyl orange or phenolphthalein [“fee-nol-THAY-leen”] as indicators. This technique uses a burette to slowly add a solution to the analyte. For 10 points, name this lab technique used to measure the concentration of an unknown solution.**

ANSWER: **titration** [or **complexometric titration** before “complexometric” is read] <David Dennis>/<ed. AR>

14. **This deity assists Ottar by threatening Hyndla until she tells him about his family. Heimdall transformed into a seal and wrestles Loki to retrieve an item that belonged to this goddess; that item is worn by Thor when he disguises himself as this deity to marry Thrym. The boar Hildisvini [“Hill-dis-vee-nee”] is one of this goddess’s companions, along with two (*) cats who pull her chariot. Her cloak of raven feathers is often borrowed by the other gods, and half of all slain warriors go to her hall of Fólkvangr. For 10 points, name this Norse goddess of love.**

ANSWER: **Freyja** [or **Freya**; do NOT accept “Frigga,” “Frigg,” “Freyr” or “Frey”] <Matthew Dew>/<ed. JO>

15. **Following this event, Jacob Leisler overthrew Francis Nicholson after taking control of Fort James. This events’ causes included the attempted repeal of the Test Act. A letter sent by the “Immortal Seven” led to this event, and its only battle was at Reading [“Redding”]. This conflict was preceded by the birth of Mary of Modena’s (*) son, which sparked Protestant fears of a Catholic monarch. The English Bill of Rights was passed as a result of this event. For 10 points, name this 1688 revolution that saw James II deposed in favor of William III and Mary II.**

ANSWER: **Glorious Revolution** [or the **Bloodless Revolution**; or the **Revolution** of **1688** before “1688” is read] <David Dennis>/<ed. JO>

16. **One artist from this movement depicted Boccaccio’s muse in red, while a red dove lands on a branch over her head. This movement, which produced *A Vision of Fiammetta*, also produced a scene of the same woman seated and singing. Another singing girl is about to (*) drown in a river in a painting from this movement featuring Elizabeth Siddal, *Ophelia*. For 10 points, name this British art movement of John Everett Millais [“mill-ay”] and Rossetti, that sought to return art to the style of the early Renaissance, before paintings such as the *School of Athens*.**

ANSWER: **Pre-Raphaelite Brotherhood** [or **PRB**] <David Dennis>/<ed. CW>

17. **The Leviathan of Parsonstown was one of these built by Lord Rosse, which like many early examples of these devices suffered from the use of speculum metal due to its low tarnishing. Because these devices use mirrors instead of lenses, they do not suffer from chromatic aberration. One type of these contains a hyperbolic secondary mirror that reflects like through a hole in the primary, that is the (*) Cassegrain type.** For 10 points, name this type of telescope, first developed by Sir Issac Newton, that is present in the Hubble Space Telescope.

ANSWER: **Reflecting Telescopes** [or **Reflecting** after “telescope” is read; prompt on Telescopes until “telescope” is read; do NOT accept “Refracting telescopes”] <Matthew Dew>/<ed. HB>

18. **This event was code-named Operation Holy Tuesday, and a neighboring nation handled diversions resulting from this event in Operation Yellow Ribbon. After this event, Article 5 of the NATO Charter was invoked for the first time. This event was planned by Khalid Sheikh Mohammed, and Mohammed (*) Atta led a group from Hamburg in carrying out this event. During this event, some passengers on United Flight 93 were able to crash-land their aircraft in Pennsylvania, but other hijacked planes destroyed the World Trade Center.** For 10 points, name this terrorist attack by al-Qaeda.

ANSWER: **9/11** attacks [accept any clear-knowledge equivalent related to terrorist attacks on **September 11**, 2001; prompt on partial answer, such as September or 11th] <Tyler Benedict>/<ed. JO>

19. **One character in this play is told to “represent the shell of the eggs” after complaining about wearing a chef’s hat. A prostitute for a woman in this play appears when coats and hats are hung up and is named Madame Pace [“pa-chay”]. This play’s climax sees the (*) Child drown in a fountain and the Boy shoot himself in the head. At the end of this play, the Manager regrets wasting a whole day on the title group, which includes the Father and the Step-Daughter.** For 10 points, name this absurdist play by Luigi Pirandello.

ANSWER: **Six Characters in Search of an Author** [or **Sei personaggi in cerca d'autore**] <Carrie Derner>/<ed. ME>

20. **In a text by this thinker, he argues against the idea that holiness comes from prosecuting blasphemy, or from what the gods approve. Aristophanes [“Air-ess-TOFF-oh-nees”] describes how Zeus split people into two to explain love’s origins in one of this man’s (*) dialogues. In one of this man’s texts, he states that the soul is made of three parts. This Greek philosopher describes a ring that turns its user invisible, and a government led by philosopher-kings in his work *The Republic*.** For 10 points, name this student of Socrates and teacher of Aristotle.

ANSWER: **Plato** [or **Platon**] <Sophia Johnson>/<ed. HB>

Bonuses

1. Cayley's Theorem states that every group is isomorphic to a group of these things. For 10 points each:

[10] Name this function, that rearranges the elements of an ordered list S into a one-to-one correspondence with S itself. The number of these on a set of n elements is given by n factorial.

ANSWER: permutations

[10] Unlike permutations, in this function, the final order doesn't matter. The binomial coefficient or choose function gives this number of ways of picking k unordered outcomes from n possibilities.

ANSWER: combinations

[10] This theorem's expand form contains the sum from n equals zero to n of n choose k term multiplied by x to the n minus k and y to the k . This theorem helps explain patterns in Pascal's Triangle.

ANSWER: Binomial Theorem <David Dennis>/<ed. HB>

2. The namesakes of this crisis were the French diplomats Jean-Conrad Hottinguer, Pierre Bellamy, and Lucien Hauteval. For 10 points each:

[10] Name this event in which Charles Pinckney, John Marshall, and Elbridge Gerry attempted to meet with Charles Talleyrand, but instead were asked for bribes.

ANSWER: XYZ Affair

[10] The XYZ Affair occurred during the term of this second president of the United States, who oversaw the passage of the Alien and Sedition Acts.

ANSWER: John Adams [prompt on Adams; do NOT accept "John Q. Adams" or "John Quincy Adams"]

[10] This unofficial war with France was also fought by the Adams presidency. This conflict was ended by the Treaty of Mortefontaine in 1800.

ANSWER: Quasi War [or Half War; or Pirate War; or Quasi-guerre] <Cole Phinney>/<ed. JO>

3. One version of this scene has three stars in its background and depicts a gray headed man with a scythe biting and agonizing child, and was painted by Rubens. For 10 points each:

[10] Identify this mythological scene. Another version of this scene depicts a nude man with a bloody arm in his mouth.

ANSWER: Saturn Devouring His Son

[10] The second mentioned version of *Saturn Devouring His Son* is by this Spanish artist, whose *Third of May, 1808* depicts a French firing squad during the Peninsular War.

ANSWER: Francisco Goya [or Francisco José de Goya y Lucientes]

[10] Goya included *Saturn Devouring His Son* in this collection, which were originally painted on the walls of the home he was staying in. Other paintings in this collection include *Witches Sabbath* and *Fight with Cudgels*.

ANSWER: The Black Paintings [or Pinturas Negras] <Tyler Benedict>/<ed. CW>

4. In this work, Mrs. Schacter [“*SHACK-ter*”] screams about fire, leading to her being bound and gagged. For 10 points each.

[10] Name this memoir, in which the author constantly asks the question, “Where is God now?”

ANSWER: Night [or *La Nuit*]

[10] This Jewish author of *Night* also wrote *Dawn and Day*, as well as the play *The Trial of God*. He passed away in July 2016.

ANSWER: Elie Wiesel [or Eliezer Wiesel]

[10] This other Jewish author wrote about a man, who attempts to kill frogs in a cistern with a flashlight bomb, after traveling to Africa in *Henderson, the Rain King*.

ANSWER: Saul Bellow [or Solomon Bellows] <Jonathan Amlong>/<ed. ME>

5. Answer the following about Emile Durkheim. For 10 points each:

[10] The “rules” and “method” of this discipline title an 1895 book by Durkheim, which distinguishes it from psychology. This social science studies the elements of human society.

ANSWER: sociology [or *The Rules of Sociological Method*]

[10] Durkheim divided this action into fatalistic, altruistic, egoistic and anomic varieties. In the book named for this action, Durkheim analyzed why different groups of people kill themselves.

ANSWER: suicide [or *Suicide*]

[10] In his work *The Division of Labor in Society*, Durkheim coined this term, which refers to the “totality of beliefs and sentiments” shared between society’s average members.

ANSWER: Collective consciousness <Sophia Johnson>/<ed. HB>/<ed. JO>

6. Answer the following about mythological bridges. For 10 points each.

[10] It’s not Hinduism, but adherents of this myth system believe souls cross the Chinvat Bridge, which is guarded by two four-eyed dogs and widens or narrows based on a soul’s worthiness.

ANSWER: Zoroastrianism [or Zarathustrism; or Mazdaism; or Magianism; or Parsiism]

[10] Perhaps the most famous mythological bridge is this rainbow bridge from Norse mythology. Heimdall guards this bridge from giants.

ANSWER: Bifrost Bridge [or Asbrú]

[10] Robin Hood encounters this seven-foot tall man on a narrow bridge, and the two fight with staves. Robin loses, but this figure joins the Merry Men and becomes Robin’s trusted friend.

ANSWER: Little John [or John Little] <Tyler Benedict>/<ed. JO>

7. Answer some questions about the model organism *Danio rerio*, or the zebrafish. For 10 points each:

[10] Zebrafish are particularly useful in the study of embryo development, as their eggs develop rapidly and have this property, which allows them to be seen easily in a dissecting microscope.

ANSWER: transparent [or clear; or see-through; accept word forms]

[10] Zebrafish hearts are also studied as they unusually can undergo this process, the regrowth of tissues after injury. This process occurs naturally in the human skin and liver.

ANSWER: regeneration

[10] GloFish are a strain of zebrafish that have the gene for this protein. This protein, first isolated from jellyfish, emits light of a certain color when exposed to ultraviolet light.

ANSWER: Green fluorescent protein [or GFP] <David Dennis>/<ed. AR>

8. This man has faced protests since early 2014 due to his nation's food shortages, urban violence and inflation. For 10 points each:

[10] Name this resident of the Palacio de Miraflores.

ANSWER: Nicolás **Maduro** Moros

[10] Maduro succeeded Hugo Chavez as president of this South American nation.

ANSWER: Bolivarian Republic of **Venezuela** [or República Bolivariana de **Venezuela**]

[10] This coordinator of Voluntad Popular was released from prison and placed under house arrest in early July. However, he was placed back in prison in early August.

ANSWER: Leopoldo Eduardo **López** Mendoza <William Groger>/<ed. DD>

9. This author reflected on the death of his wife in his book *A Grief Observed*, which he wrote under the pen name N.W. Clerk. For 10 points each.

[10] Name this novelist and Christian apologist, who wrote *The Chronicles of Narnia*.

ANSWER: C.S. **Lewis** [or Clive Staples **Lewis**]

[10] C.S. Lewis's allegorical book *The Great Divorce* takes its title from this book. Aldous Huxley's *Doors of Perception* also takes its title from this book.

ANSWER: *The **Marriage of Heaven and Hell*** (by William Blake)

[10] This other C.S. Lewis work was originally published as a serial in an Anglican periodical called *The Guardian*. It is comprised of writings from a demon to his nephew Wormwood.

ANSWER: *The **Screwtape Letters*** <Sophia Johnson>/<ed. ME>

10. Senator Thomas Hart Benton of Missouri denounced this act, because Congress "broke down the sacred laws" of the past. For 10 points each:

[10] Name this Stephen Douglas-authored act, which allowed for the decision of whether to legalize slavery to be settled by popular sovereignty in the two namesake Great Plains territories.

ANSWER: **Kansas-Nebraska** Act

[10] This Republican called the Kansas-Nebraska Act "in every respect a swindle" in a speech that compared Andrew Butler to Don Quixote. He was nearly caned to death by Preston Brooks.

ANSWER: Charles **Sumner**

[10] Stephen Douglas engaged in a series of seven debates with this man, who declared that "a house divided against itself cannot stand." This President gave the Gettysburg Address.

ANSWER: Abraham **Lincoln** [or **Lincoln**-Douglas debates] <Cole Phinney>/<ed. JO>

11. This phenomenon is why large-diameter telescopes give sharper images than small ones. For 10 points each:

[10] Name this spreading of waves such as light around the edges of obstacles and through small openings.

ANSWER: **diffraction**

[10] This diffraction pattern results from diffracted light from a lens with circular aperture. This is the smallest spot of light that a perfect lens or mirror can focus, and consists of a central disc with surrounding concentric rings.

ANSWER: **Airy** disc

[10] Alternating light and dark bands representing constructive and destructive interference were found in this famous experiment by Thomas Young that demonstrated the wave nature of light.

ANSWER: Young's **double-slit** experiment <David Dennis>/<ed. HB>

12. The patriarch of this family, LaVar, has made headlines for, among other things, claiming his oldest son would beat Michael Jordan in a one-on-one basketball game. For 10 points each:

[10] Name this family, whose members include a point guard drafted second overall by the Lakers in the 2017 NBA Draft. This family includes the younger brothers LiAngelo and LaMelo.

ANSWER: **Ball** family [or LaVar **Ball**; or Lonzo **Ball**; or LiAngelo **Ball**; or LaMelo **Ball**]

[10] Lonzo played one year of college basketball for this California university, whose athletic teams are called the Bruins.

ANSWER: **UCLA** [or **University of California, Los Angeles**]

[10] In addition to talking up his sons, LaVar Ball has founded this alliterative sports apparel company. This company's flagship sneaker, the ZO2, has a retail price of \$495.

ANSWER: **Big Baller Brand** [prompt on partial answer; prompt on **BBB**] <Tyler Benedict>/<ed. SP>/<ed. JO>

13. In mensural notation, this sign is shown as a complete or incomplete circle, and may contain a dot, indicating prolation. For 10 points each:

[10] Name this musical notational shorthand symbol, which typically consists of two numbers, one over the other, that gives information about the grouping and notation of the beat.

ANSWER: **Time Signature**

[10] The incomplete circle without a dot, which looks like the letter C, is also used as the symbol for "Common Time," a shorthand for this most common modern time signature.

ANSWER: **4/4** [or **four-four**]

[10] A vertical slash through the C in 4/4 time is referred to as "cut time", or 2/2. The bottom number "2" in 2/2 indicates that this type of note shows one beat.

ANSWER: **Half** Note [or alla **breve**] <David Dennis>

14. Govinda fails to recognize this novel's title character after parting ways with him to follow Gotama. For 10 points each.

[10] Name this novella, whose protagonist achieves enlightenment with the help of the ferryman Vasudeva.

ANSWER: Siddhartha

[10] This German-born author of *Siddhartha* also wrote about Harry Haller's trip to the Magic Theater in *Steppenwolf*.

ANSWER: Hermann Hesse [or Hermann Karl Hesse]

[10] This courtesan's songbird dies in a dream Siddhartha has prior to leaving the city. She reveals that she gave birth to Siddhartha's son before dying of a snakebite.

ANSWER: Kamala <Sophia Johnson>/<ed. ME>

15. He was re-elected in 2017 for a third term with 99% of the vote. For 10 points each:

[10] Name this former leader of a Tutsi rebel group, whose invading RPF force captured Kigali in 1994. He was accused of war crimes during a 1996 invasion of a neighboring country.

ANSWER: Paul Kagame

[10] Kagame's invasion helped to end a 1994 massacre in this country, where Kagame serves as President. That 1994 genocide in this country started after the death of Juvenal Habyarimana.

ANSWER: Rwanda [or Ruanda; or Republic of Rwanda; or Republika y'u Rwanda; or Rwandan Genocide]

[10] When it became apparent the RPF would prevail, an estimated two million members of this majority Rwandan ethnic group fled into Zaire. During the genocide, they killed many Tutsis.

ANSWER: Hutus [or Bahutus; or Wahutus] <David Dennis>/<ed. JO>

16. Answer the following about the Prime Ministers of Queen Victoria. For 10 points each:

[10] Queen Victoria didn't favor this man's Conservative Party, which was established in his Tamworth Manifesto. He founded the London Police Force and repealed the Corn Laws.

ANSWER: Sir Robert Peel

[10] This Liberal rival of Benjamin Disraeli passed the Third Reform Act. He set up the secret ballot and was blamed for General "Chinese" Gordon's death at Khartoum.

ANSWER: William Gladstone [or William Ewart Gladstone]

[10] Joseph Chamberlain and Lord Harlington's Liberal Unionists broke away from Gladstone over the question of Home Rule for this island country, which suffered an 1840s "potato famine."

ANSWER: Ireland [or Eire; or Irish Free State; or the Irish Potato Famine] <Audrey Bush>/<ed. JO>

17. The Ysleta International Bridge connects this city to a neighboring country. For 10 points each:

[10] Identify this city in Chihuahua, that is named for a president of its nation.

ANSWER: Ciudad **Juarez**

[10] This city in Texas lies directly across the Mexican border from Ciudad Juarez.

ANSWER: **El Paso**, Texas

[10] Canby Mountain in the Continental Divide is the source of this river, which separates Ciudad Juarez from El Paso.

ANSWER: **Rio Grande** [or **Rio Bravo** del Norte] <John John Groger>/<ed. DD>

18. This man attained kevala jnana after spending 12 years as an ascetic. For 10 points each:

[10] Name this man whose teachings are contained in the *Agamas*. This twenty-fourth Tirthankara reformed Jainism into its current form.

ANSWER: **Mahavira** [or **Vardhamana**]

[10] Jainism is divided into the Śvētāmbara [*“Svay-tam-bar-ah”*] and this other sect. This sect believes the *Agamas* were lost during a famine, and this sect's monks do not wear clothes.

ANSWER: **Digambara** [or **Sky-Clad**]

[10] In Jain cosmology, the Kalpavriksha [*“Kal-pav-rik-sha”*] refers to a wish-fulfilling type of these objects. Other examples of these objects found in India are the "peepal" and "banyan" ones.

ANSWER: **trees** <Sophia Johnson>/<ed. AR>

19. Characters in this novel frequent the Korova Milk Bar and engage in acts of “ultraviolence.” For 10 points each.

[10] Name this novel in which Alex leads a gang of “droogs” before being subjected to the “Ludovico technique.”

ANSWER: A **Clockwork Orange**

[10] Alex’s Ludovico aversion therapy renders him no longer able to appreciate this German’s Ninth Symphony, although he was previously Alex’s favorite composer.

ANSWER: Ludwig van **Beethoven** [prompt on a partial answer, such as **Lovely Ludwig Van**]

[10] Alex and his gang speak this Russian-inflected slang. In addition to “droog,” words in this language include “dratsing” for “fighting” and “horrorshow” for “good.”

ANSWER: **Nadsat** <Tyler Benedict>/<ed. ME>

20. Answer the following about trends found in the periodic table. For 10 points each:

[10] This is the minimum amount of energy that an isolated, gaseous atom in the ground state must absorb to discharge an electron. This quantity generally increases from left to right across each period, peaking at the noble gases.

ANSWER: **ionization energy**

[10] This value, a measure of the size of an atom, is usually measured in picometers. It usually decreases to the right and increases downwards.

ANSWER: atomic **radius**

[10] Atomic radius is substantially affected by this effect, in which the inner shell electrons lower the effective nuclear charge enacted on valence electrons.

ANSWER: **shielding effect** [or electron **shielding**] <David Dennis>/<ed. AR>